

Supplemental Preliminary Amendment

Applicant: Christian Paulus

Serial No.: 10/528,504

(Priority Application No. DE 102 43 569.3)

(International Application No. PCT/DE03/03123)

Filed: March 18, 2005

(Priority Date 19 September 2002)

(International Filing Date 19 September 2003)

Docket No.: 1432.115.101/P29934

Title: CIRCUIT ARRANGEMENT WITH AN INTEGRATED REFERENCE ELECTRODE AND METHOD THEREFOR

IN THE CLAIMS

Please cancel claim 1.

Please add claims 13-32.

1. (Cancelled)

2-12. (Cancelled)

13. (New) A method for producing a biosensor circuit comprising:

forming an integrated circuit in a substrate;

forming a core of an integrated reference electrode by means of printing silver material as metal on the substrate;

applying biological molecules by means of printing on sensor arrays of the biosensor circuit arrangement, whereby the sensor arrays are biologically activated;

effecting the printing of silver material on the substrate and the printing of the biological molecules on the sensor arrays are effected in the same work step;

subsequently, at least partially surrounding the core made of silver material by a sheath made of a sparingly soluble salt of the silver material, thereby forming the integrated reference electrode; and

electrically coupling the integrated circuit to the core of the integrated reference electrode.

14. (New) The method of claim 13, further comprising forming an electrically conductive coupling structure in such a way that the integrated circuit is electrically coupled to the core by means of said coupling structure.

15. (New) The method of claim 14, further comprising arranging the coupling structure adjacent the substrate in such a way that the core is formed by means of covering the

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coupling structure with the silver material.

16. (New) The method of claim 13, further comprising using silver chloride as the salt of the metal.

17. (New) The method of claim 13, further comprising at least partially surrounding the core by the sheath by chlorinating the core made of silver using one of an electrochemical method and a chemical method.

18. (New) The method of claim 13, further comprising configuring the circuit such that a signal characteristic of the electrical potential in a region surrounding the reference electrode can be provided to said circuit by the reference electrode.

19. (New) The method of claim 13, wherein the substrate used is one a group comprising a semiconductor material, glass, plastic, and ceramic.

20. (New) The method of claim 14, wherein the coupling structure is formed from one of gold and platinum.

21. (New) A method for producing a biosensor circuit comprising:
forming an integrated circuit is formed in a substrate;
forming a core of an integrated reference electrode made of silver as metal by printing silver salt material on the substrate and chemically reducing the silver salt material to form silver;
applying biological molecules by means of printing on sensor arrays of the biosensor circuit arrangement, whereby the sensor arrays are biologically activated;
effecting the printing of the core of the integrated reference electrode on the substrate and the printing of the biological molecules on the sensor arrays in the same work step;

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subsequently, at least partially surrounding the core of the integrated reference electrode by a sheath made of a sparingly soluble salt of the silver as metal, thereby forming the integrated reference electrode; and

electrically coupling the integrated circuit to the core of the integrated reference electrode.

22. (New) The method of claim 21, further comprising forming an electrically conductive coupling structure in such a way that the integrated circuit is electrically coupled to the core by means of said coupling structure.

23. (New) The method of claim 22, further comprising arranging the coupling structure adjacent the substrate in such a way that the core is formed by means of covering the coupling structure with the silver material.

24. (New) The method of claim 21, further comprising using silver chloride as the salt of the metal.

25. (New) The method of claim 21, further comprising at least partially surrounding the core by the sheath by chlorinating the core made of silver using one of an electrochemical method and a chemical method.

26. (New) The method of claim 21, further comprising configuring the circuit such that a signal characteristic of the electrical potential in a region surrounding the reference electrode can be provided to said circuit by the reference electrode.

27. (New) The method of claim 21, wherein the substrate used is one a group comprising a semiconductor material, glass, plastic, and ceramic.

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28. (New) The method of claim 22, wherein the coupling structure is formed from one of gold and platinum.
29. (New) A biosensor circuit comprising:
an integrated circuit in a substrate;
an integrated reference electrode in the integrated circuit formed on the substrate;
a core of the integrated reference electrode that is made of silver metal and is at least partially surrounded by a sheath made of a sparingly soluble salt of the silver metal; and
sensor arrays including biological molecules;
wherein the integrated circuit is electrically coupled to the core of the integrated reference electrode.
30. (New) The biosensor circuit of claim 29, wherein the core of the integrated reference electrode is formed by printing silver material as metal on the substrate.
31. (New) The biosensor circuit of claim 30, wherein the biological molecules are applied by printing the sensor arrays.
32. (New) The biosensor circuit of claim 31, wherein the printing of the silver material and the biological molecules occurs in one work step.